

# Volunteer



*A volunteer carefully removes and counts the eggs from a new Loggerhead nest on Archie Carr National Wildlife Refuge*

## **Objectives:**

- *Understand the volunteer's role in the conservation of loggerheads.*
- *Appreciate the time and effort the volunteer dedicates to loggerhead conservation.*
- *Consider volunteer's value as a data collector, educator, and advocate.*
- *Understand the nesting and hatching behavior of loggerheads.*

Rachael McCann rolls over and switches her alarm clock off. It's 5:00 a.m. The sun will not rise for another hour, yet Rachael is getting ready for her day. Rather than a commute to the office, it begins with a bike ride to the beach. Fifteen minutes later, she is standing on the beach visiting with the other members of the Turtle Patrol and rummaging through her backpack for a clipboard with datasheets.

The Andrew's Beach Turtle Patrol is just one of many trained volunteer groups that patrol the beach from May to October monitoring loggerhead sea turtle nesting. In the United States such groups are found throughout the loggerhead's nesting range – along the coast from Virginia to the Gulf of Mexico.

Early in the summer, volunteers look for tracks made during the night by adult female turtles when they emerged from the sea. By examining tracks and marks, the Turtle Patrollers can determine whether there was a non-nesting event, also known as a 'false crawl,' or a nesting event. (SHOW PICTURE OF TRACKS) There are several characteristic behaviors a nesting female exhibits, and signs of those activities can

assist a Turtle Patroller in locating the nest. The female turtle pulls herself from the surf to the upper beach where she creates a body pit by moving sand with her front and rear flippers. Then she uses her rear flippers to excavate a nest chamber roughly in the shape of an inverted light bulb. She deposits approximately 120 eggs into the chamber, uses her rear flippers to cover the eggs with sand, camouflages the nest by throwing sand with her flippers, and then drags herself back to the sea. Until she begins laying her eggs, a disturbance on the beach, such as light, can deter her from nesting. Once she begins laying her eggs, however, the nesting female goes into a trance-like state.

The female's contribution to the population will decrease with the loss of that specific clutch, but she will be able to lay two to three more clutches throughout the remainder of the nesting season. After this season she will return to nest in two to three year's time.

Later in the summer, volunteers monitor nests for signs of hatching. Incubation takes anywhere from 50 to 65 days, depending on environmental factors. During that time, the sex organs develop. Higher temperatures tend to produce a greater percentage of females, while lower temperatures tend to produce a greater percentage of males. Just prior to hatchling emergence, the surface of the nest becomes concave or "bowls." This is because as hatchlings emerge from their eggs, their struggling moves sand above them to the bottom of the nest chamber. This produces a "sand elevator" effect. The hatchlings aggregate just below the surface until night when it is cooler. Then they emerge and crawl to the ocean by following the slope of the beach and the moonlight reflecting from the sea.

It is early July, a time when the first nests are beginning to hatch and many adults are still nesting. Rachael and the two other ladies begin walking along the ½ mile stretch of beach to which they have been assigned. About ten minutes into their patrol they see an intact loggerhead track with the characteristic alternating flipper marks and no tail mark. Because the volunteers erase tracks in the sand after marking a new nest, they know that this must be a new, unmarked nest. Rachael walks up the beach toward the dunes where there are areas of disturbed sand, evidence that a turtle has nested there. Using her probing stick, she gently tests the sand for the nest. "You must be very careful when probing," Rachael instructs. "The eggs may only be a few inches below the surface. Although they have a tough leathery shell, they can easily be damaged by the probe." When Rachael finds an area with less compact sand, she places a numbered wooden stake about a foot behind and to the left of the nest. "This is nest 172. That's about an average number of nests for this time of the season. We rarely get more than 275 nests a season in South Carolina, but in some places in Florida, such as the Archie Carr National Wildlife Refuge, they can get up to that many in a night!" declares Rachael.

The ladies continue walking and soon reach nest number 17, one of the first nests laid this season. There is a crowd of people surrounding it. "We invite residents and tourists to observe our nest inventories. Although it's very early in the morning, we usually get at least a few people at each one. People seem to really love sea turtles. They are such unique animals!" explained Rachael. This nest first began to hatch three days ago, so it

is now time to open it, count the number of hatched, pipped, unhatched, and damaged eggs and release any remaining hatchlings. Rachael kneels next to a depression on the beach and begins to gently remove sand. The spectators watch anxiously. One hatchling is removed and placed in a plastic tub with sand in the bottom. Soon, four others join it. The final count is 87 hatched eggs, 7 unhatched eggs, and 4 pipped eggs. It was a successful nest. "We were really lucky with this nest," commented Rachael. "We had no trouble with predators. Often ants, ghost crabs, and raccoons will get into the nest and eat eggs or hatchlings. Even armadillos and feral cats and dogs can depredate nests. Sometimes we must resort to relocating nests or putting metal screens over nests to protect them. Occasionally we relocate nests if they are laid in an erosion-prone area or too close to the high tide line since developing hatchlings can be drowned if the nest is inundated with water. We generally don't like to relocate nests since the new nest may have a different temperature structure and thus may alter sex ratios. If we do decide to relocate a nest, we try to choose a site as similar as possible to the site selected by the nesting female. Overall, our relocated nests seem to be as - if not more - successful as our non-relocated nests." The hatchlings collected from the inventoried nest are allowed to crawl down the beach under the supervision of the Turtle Patrollers and those who have come to watch the inventory. This time may be important for imprinting. Many adult females return to nest on the beach where they hatched years before. Somehow these turtles are able to navigate back to their natal beaches. There may be some cue detected during incubation in the nest or during the crawl to the ocean that the females use to locate this beach in 20-40 years when they begin nesting.

Rachael and her two friends finish their patrol without seeing any other tracks or signs of hatching. "Sometimes we see stranded turtles," remarks Rachael. "We'll occasionally find dead juvenile loggerheads on the beach. We've been trained to collect stranding data, so if we come across a stranded turtle, we take various measurements, record them on a special datasheet, and call the folks at the Sea Turtle Stranding Network."

It's 7:00am by the time Rachael bikes back home. She gets cleaned up and leaves for work. In addition to volunteering on the Turtle Patrol, she works full time as a librarian. Only one of the fifty Turtle Patrollers is retired—the rest work full time in addition to volunteering.

Over lunch, Rachael makes copies of door hangers to remind people to turn their lights off at night if they can be seen from the beach. Rachael also telephones the local newspaper, aquarium, and police office to remind them about the importance of the "Lights Out" program and Wednesday's public lecture, "Loggerhead Sea Turtle Nesting Protection at Andrew's Beach – How You can Help."

### **Transcript: Volunteer Ehrhart FalseCrawls.wmv**

"You record as many false crawls, if you'll permit me to use that term, as nests year in and year out. Non-nesting after emergence is a normal part of sea turtle behavior. It happens all the time. For example, take a look at this: no human

footprints, no dog tracks, nothing, this turtle wasn't disturbed. She just decided this wasn't the time, this wasn't the place."

**Questions:**

1. *Rachael contacts the manager of a local beach-front hotel about turning their exterior lights out after dark. He refuses to do so. What options does Rachel have available to her at this point? What would you do next?*
2. *Rachael is going for a stroll on the beach at dusk. As it gets darker she sees several lights from nearby houses. What options does Rachel have available to her at this point? What action would you take?*
3. *What are some ways besides the "Lights Out" program that Rachael can get people involved in sea turtle conservation?*
4. *The town has proposed to add a beach wall to one stretch of the shoreline and renourish another section. Both have the potential to significantly affect sea turtles. Describe the possible effects such modifications could have on nesting and hatching loggerheads? What you do at this point?*